

## CLAIMS

I claim:

1. A skateboard capable of undulating self-propulsion, comprising a front footboard, a rear footboard and an elongated strut connecting the two footboards, said footboards each including an elongated footpad, a single wheel mounted to said footpad, and a pivot joint connecting the footpad to said strut, said pivot joint having a pivot axis substantially perpendicular to the top surface of the footpad, said wheel being located such that the contact of the wheel and the ground is approximately centered under the footpad, the wheel axis of the wheel being aligned substantially parallel to the plane of the footpad and being aligned to within approximately 30 degrees of the long axis of the footpad, said strut resisting extension and being substantially rigid in bending.
2. A skateboard of claim 1 in which the wheel of each footboard is mounted on the underside of the footpad.
3. A skateboard of claim 1 in which the footpad of each footboard is mounted within the circumference of the wheel, said wheel being supported by a large bore bearing or by several smaller wheels engaging a circular rail, resulting in an opening sufficiently large to accept the footpad and the front half of the rider's shoe.
4. A skateboard of claim 1 in which the strut is a flexure which is substantially rigid in bending and flexible in torsion, thereby allowing the footboards to be tilted independently.
5. A skateboard of claim 1 in which the strut has one or more swivel-joints allowing torsional rotation while resisting bending.
6. A skateboard of claim 1 in which the initial length of the strut can be adjusted to accommodate riders of various leg lengths.
7. A skateboard of claim 1 having at least one pair of detachable training wheels mounted to at least one of the footboards, said training wheels being aligned with their axes substantially parallel to the axis of said wheel of claim 1, said training wheels being spaced apart to prevent excessive tilting of the footboard thereby allowing a beginner to more quickly learn to self-propel the skateboard.

8. A skateboard of claim 7 in which the strut is substantially rigid in bending but flexible in torsion, as could be achieved by a flexure such as an I-beam or channel, or using a swivel-joint.

9. A skateboard of claim 1 in which the pivot joint of each footboard allows approximately +/- 45 degrees of steering travel.

10. A skateboard of claim 1 in which said foot platform of each said assembly can tilt approximately +/- 30 degrees before contacting the ground.

11. A skateboard capable of undulating self-propulsion on ice, comprising a front footboard, a rear footboard, and an elongated strut connecting said footboards, said footboards each having a footpad, an ice-blade and a bracket arrangement, said bracket arrangement being located on the underside of said footpad and providing a pivoting connection between the footpad and the ice-blade, said pivoting connection having a pivot axis substantially perpendicular to the long axis of the ice-blade and substantially parallel to the surface of the footpad, said bracket arrangement also providing a pivot joint to said strut, said pivot joint having a pivot axis substantially perpendicular to the surface of the footpad and said strut being resistant to extension and substantially rigid in bending.

12. A skateboard capable of undulating self-propulsion on snow, comprising a front footboard, a rear footboard, and an elongated strut connecting said footboards, said footboards each having a footpad, a ski-runner and a bracket arrangement, said bracket arrangement being located on the underside of said footpad and providing a pivoting connection between the footpad and the ski-runner, said pivoting connection having a pivot axis substantially perpendicular to the long axis of the ski-runner and substantially parallel to the surface of the footpad, said bracket arrangement also providing a pivot joint to said strut, said pivot joint having a pivot axis substantially perpendicular to the surface of the footpad and said strut being resistant to extension and substantially rigid in bending.

13. A skateboard comprising a front footboard, a rear footboard and an elongated strut connecting said footboards, said skateboard allowing the two footboards to steer and tilt independently, said skateboard being statically unstable due to a single narrow contact with the ground under each footboard, said skateboard being capable of travel on

pavement, snow or ice using a pair of attachments, each attachment being either a wheel, an ice-blade, or a ski-runner, said footboards each comprising a footpad, one of said attachments, and a bracket arrangement providing a first pivot joint and a second pivot joint, said first pivot joint being for the purpose of attaching one of said attachments, said first pivot joint also allowing the ice-blade or ski-runner to tilt and steer while maintaining substantial line contact with the ground, said first pivot joint being located approximately central to the underside of the footpad and having a pivot axis substantially perpendicular to the direction of travel and substantially parallel to the surface of the footpad, said second pivot joint being for the purpose of attaching to the strut and having a pivot axis substantially perpendicular to the surface of the footpad, said strut resisting extension, being substantially rigid in bending, and being substantially flexible in torsion to allow the two footboards to tilt independently.

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